

Claims:

- 1            1.     A dual packet configuration for wireless communication, comprising:  
2            a first portion that is modulated according to a serial modulation; and  
3            a second portion that is modulated according to a parallel modulation.
- 1            2.     The dual packet configuration of claim 1, further comprising:  
2            the serial modulation comprising direct sequence spread spectrum (DSSS); and  
3            the parallel modulation comprising orthogonal frequency division multiplexing  
4            (OFDM).
- 1            3.     The dual packet configuration of claim 2, wherein the first portion  
2            includes a preamble and a header.
- 1            4.     The dual packet configuration of claim 3, wherein the preamble comprises  
2            a long preamble.
- 1            5.     The dual packet configuration of claim 3, wherein the preamble comprises  
2            a short preamble.
- 1            6.     The dual packet configuration of claim 3, the header including an OFDM  
2            mode bit.
- 1            7.     The dual packet configuration of claim 6, the header further including a  
2            length field indicating the duration the second portion.
- 1            8.     The dual packet configuration of claim 2, the second portion further  
2            comprising:

3 an OFDM synchronization pattern;  
4 an OFDM signal symbol; and  
5 an OFDM payload.

1 9. The dual packet configuration of claim 8, further comprising:  
2 the OFDM signal symbol including a data rate section and a data count section.

1 10. The dual packet configuration of claim 2, further comprising:  
2 the first portion based on a first clock fundamental; and  
3 the second portion based on a second clock fundamental.

1 11. The dual packet configuration of claim 10, wherein the first clock  
2 fundamental is approximately 22 Megahertz (MHz) and the second clock fundamental is  
3 approximately 20 MHz.

1 12. The dual packet configuration of claim 2, wherein the first and second  
2 portions are based on a single clock fundamental.

1 13. The dual packet configuration of claim 12, further comprising:  
2 the second portion including OFDM symbols wherein each OFDM symbol  
3 includes a guard interval with a standard number of samples for OFDM.

1 14. The dual packet configuration of claim 12, further comprising:  
2 the second portion including OFDM symbols wherein each OFDM symbol  
3 includes a guard interval with an increased number of samples.

1           15.    The dual packet configuration of claim 12, further comprising:  
2           the second portion including OFDM symbols wherein each OFDM symbol  
3           includes a reduced number of frequency subcarriers.

1           16.    The dual packet configuration of claim 15, wherein each OFDM symbol  
2           includes 48 frequency subcarriers.

1           17.    The dual packet configuration of claim 15, wherein each of the frequency  
2           subcarriers is a data subcarrier.

1           18.    The dual packet configuration of claim 15, wherein the frequency  
2           subcarriers include at least one pilot tone.

1           19.    The dual packet configuration of claim 15, further comprising:  
2           each of the frequency subcarriers initially comprising a data subcarrier;  
3           wherein a subset of the data subcarriers is discarded and replaced with a  
4           corresponding number of pilot tones for transmission; and  
5           wherein upon reception the discarded data subcarriers are recreated using received  
6           data.

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the dual packet configuration including first and second portions, the first portion modulated according to a serial modulation method and the second portion modulated according to a parallel modulation method.

21. The wireless communication device of claim 20, wherein the serial modulation is direct sequence spread spectrum (DSSS) and the parallel modulation method is orthogonal frequency division multiplexing (OFDM).

1           22.     The wireless communication device of claim 21, the first portion including  
2     a header with an OFDM mode bit.

1        23.    The wireless communication device of claim 22, the header further  
2    including a length field indicating the duration of the second portion.

4 a second clock source based on a second clock fundamental, the second portion  
5 based on the second clock fundamental.

1        25.    The wireless communication device of claim 24, wherein the first clock  
2    fundamental is approximately 22 Megahertz (MHz) and the second clock fundamental is  
3    approximately 20 MHz.

1        26.    The wireless communication device of claim 21, further comprising:  
2        a clock source based on a clock fundamental, the first and second portions based  
3    on the clock fundamental.

1        27.    The wireless communication device of claim 26, wherein the second  
2    portion includes OFDM symbols, each OFDM symbol including a guard interval with a  
3    standard number of samples for OFDM.

1        28.    The wireless communication device of claim 26, wherein the second  
2    portion includes OFDM symbols, each OFDM symbol including a guard interval with an  
3    increased number of samples.

1        29.    The wireless communication device of claim 26, wherein the second  
2    portion includes OFDM symbols, each OFDM symbol including a reduced number of  
3    frequency subcarriers.

1        30.    The wireless communication device of claim 29, wherein each of the  
2    frequency subcarriers is a data subcarrier.

1        31.    The wireless communication device of claim 29, wherein the frequency  
2    subcarriers include at least one pilot tone.



1 36. A method of wireless communication using a dual packet configuration,  
2 comprising:

3 modulating a first portion of each packet according to a serial modulation; and  
4 modulating a second portion of each packet according to a parallel modulation.

1 37. The method of claim 36, further comprising:  
2 the modulating a first portion of each packet comprising modulating according to  
3 direct sequence spread spectrum (DSSS); and  
4 the modulating a second portion of each packet comprising modulating according  
5 to orthogonal frequency division multiplexing (OFDM).

1 38. The method of claim 37, further comprising:  
2 including a header with an OFDM mode bit in the first portion; and  
3 including a length field in the header indicating a duration of the second portion.

1 39. The method of claim 37, further comprising:  
2 the modulating a first portion of each packet comprising modulating based on a  
3 first clock fundamental; and  
4 the modulating a second portion of each packet comprising modulating based on a  
5 second clock fundamental.

1 40. The method of claim 37, wherein the modulating first and second portions  
2 of each packet comprises modulating based on a single clock fundamental.

1           41.    The method of claim 40, wherein the modulating the second portion of  
2 each packet comprises including a guard interval with a standard number of samples for  
3 each OFDM symbol.

1           42.    The method of claim 40, wherein the modulating the second portion of  
2 each packet comprises including a guard interval with an increased number of samples  
3 for each OFDM symbol.

1           43.    The method of claim 40, wherein the modulating the second portion of  
2 each packet comprises including a reduced number of frequency subcarriers for each  
3 OFDM symbol.

1           44.    The method of claim 43, further comprising:  
2           discarding a subset of the data subcarriers;  
3           replacing the discarded data subcarriers with a corresponding number of pilot  
4 tones for transmission; and  
5           regenerating the discarded data subcarriers based on received data.

1           45.    The method of claim 36, further comprising:  
2           switching to a super short mode of operation in which only the second portion  
3 modulated according to the parallel modulation is utilized for communications.

1           46.    The method of claim 36, further comprising:  
2           switching to a standard mode of operation in which the second portion is  
3 modulated according to the serial modulation.